

REMARKS

This application has been carefully reviewed in light of the Office Action mailed on July 16, 2003. Claims 32-96 have been canceled. Claims 1-31, 97 and 98 are now pending. Applicants respectfully request reconsideration of the above-referenced application in light of the amendments and following remarks.

Claims 1-31 and 98 stand rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by Agarwal. Reconsideration is respectfully requested.

The claimed invention relates to a capacitor structure with an annealed top conducting layer to reduce capacitor current leakage. In the prior art, only the dielectric layer was annealed to fill in oxygen vacancies and not the top conducting layer (Applicants' specification, page 3, lines 17-18).

As such, independent claim 1 recites a "capacitor for a semiconductor device . . . comprising a bottom conducting layer, a dielectric layer . . . and an annealed top conducting layer . . . comprising an oxygen permeable material." (emphasis added). Similarly, claim 98 recites a "capacitor for a semiconductor device . . . comprising a bottom conducting layer, an annealed dielectric layer . . . and an annealed top conducting layer . . . comprising a metal oxide permeable to oxygen." (emphasis added).

The Office Action asserts that Agarwal teaches "an 'annealed' top conducting layer 70 having oxygen permeable material (Pt is an example of the material." (Office Action, page 2). In support, the Office Action cites Agarwal's Fig. 1 and Col. 5, lines 15-40 and Col. 6, lines 45-60.

Applicants respectfully submit that Agarwal fails to teach an annealed top conducting layer. There is no support whatsoever in Agarwal, Col. 5, lines 15-40 or Col. 6, lines 45-60 for this assertion. In fact, there is no teaching anywhere in Agarwal for an annealed top conducting layer.

The Office Action further asserts that “applicant alleges ‘that there is no teaching anywhere in Agarwal for an annealed layer . . . [and] applicant is directed to column 6, lines 54-56, where Agarwal’s invention includes heat treatment that indeed applies to the top layer 70.’” (Office Action, pg. 5).

First, Applicant respectfully submits that claims 1 and 98 recite, “an annealed top conducting layer.” (emphasis added). Thus, Applicant is not contending that Agarwal does not teach an ‘annealed layer,’ but that Agarwal fails to teach an annealed top conducting layer. Second, column 6, lines 54-56 of Agarwal does not teach a heat treatment applied to the top layer 70. Agarwal’s column 6, lines 54-56 merely teaches that, “CVD, PVD, sputtering, evaporation, or other suitable means may be used to form the upper electrode 70, and the means chosen will vary depending on the desired structure.” Finally, Agarwal teaches only heat treating the dielectric layer 72. Agarwal teaches that “[t]he dielectric layer 72 is then formed over the platinum layer 74, as illustrated by FIG. 7. . . [and] [t]he resultant dielectric layer 72 is then dried at a low temperature, e.g., 100 degrees Celsius, and then treated by exposing it to a high temperatures (300 to 1100 degrees Celsius) for a period of time sufficient to drive water and solvent out of the layer and to form a hard dielectric layer 72.” (Col. 6, lines 32-47) (emphasis added). Next, Agarwal teaches that “[r]eferring now to FIG. 8, the upper electrode 70 is formed on the [hard] dielectric layer.” (Col. 6, lines 48-50). Agarwal does not teach annealing the top layer 70 as the Office Action mistakenly asserts. The dielectric layer 72 is treated at a high temperature to make it hard, then the upper electrode 70 is formed on the hard dielectric layer 72.

Agarwal does not teach “an annealed top conducting layer . . . comprising an oxygen permeable material,” as claim 1 recites, or an “annealed dielectric layer . . . and an annealed top conducting layer . . . comprising a metal oxide permeable to oxygen,” as claim 98 recites.

Accordingly, for at least these reasons, withdrawal of the rejection for claims 1 and 98 is solicited. In addition, dependent claims 2-31 which depend from and

incorporate all of the limitations of independent claim 1, are similarly allowable for at least the reasons provided above regarding claim 1.

Claim 97 stands rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Agarwal in view of Li. Reconsideration is respectfully requested.

Applicants respectfully submit that 35 U.S.C. § 103(c) should be applied and that Agarwal is not a proper reference for purposes of a 35 U.S.C. § 103(a) rejection. See M.P.E.P. § 706.02(l)(1). “In order to be disqualified as prior art under 35 U.S.C. § 103(c), the subject matter which would otherwise be prior art to the claimed invention and the claimed invention must be commonly owned at the time the claimed invention was made.” M.P.E.P. § 706.02(l)(2). As a result, Applicants have submitted a “Statement of Common Ownership,” that provides sufficient evidence to disqualify the Agarwal patent from being used in a rejection under 35 U.S.C. § 103(a). See M.P.E.P. § 706(l)(2)(II. Evidence Required to Establish Common Ownership.” Accordingly, Applicants respectfully request that all 35 U.S.C. § 103(a) rejections based on Agarwal be withdrawn.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue.

Dated: October 14, 2003

Respectfully submitted,

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